

HCV Genome and Recombinant Proteins

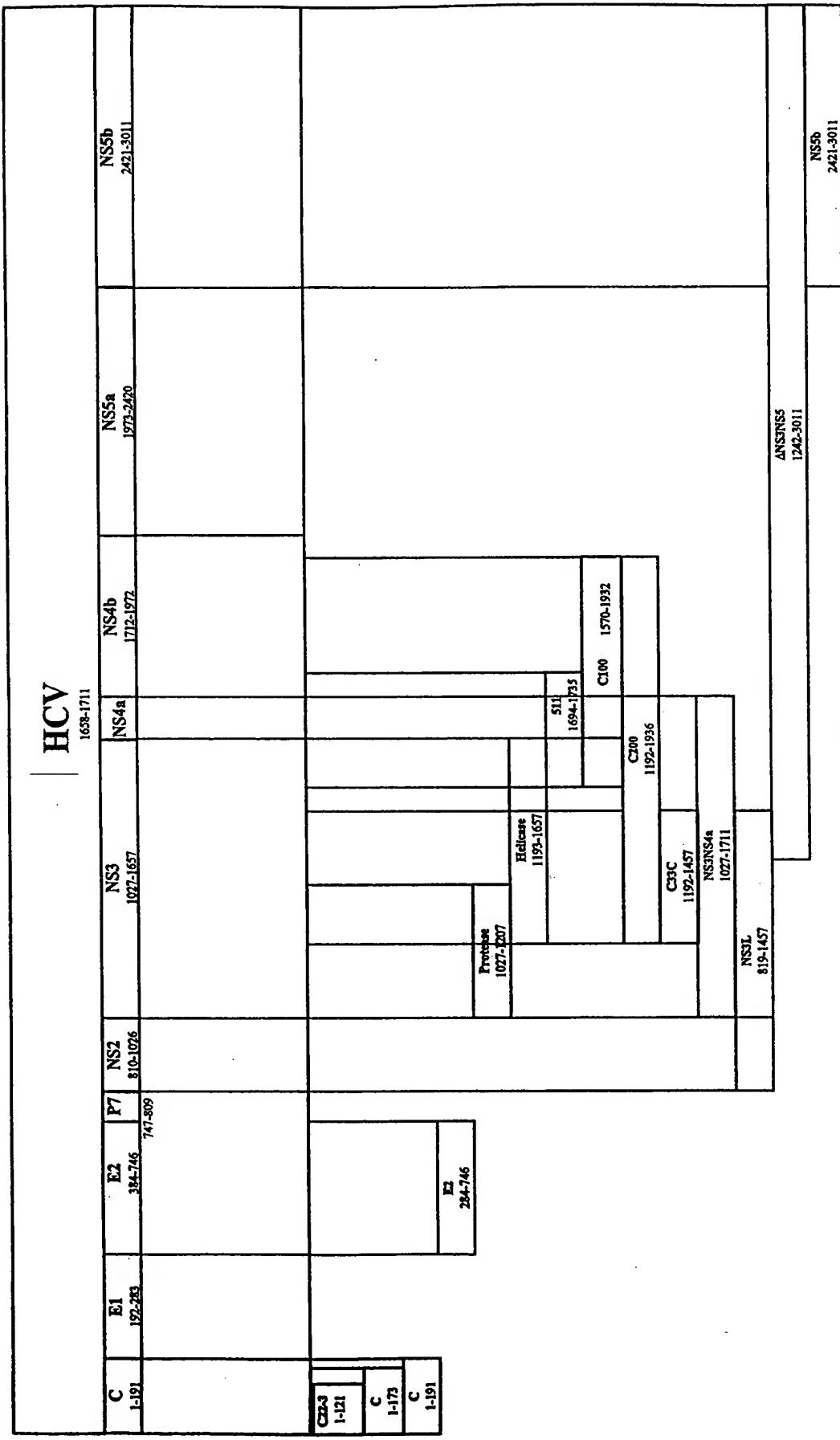


FIG. 1

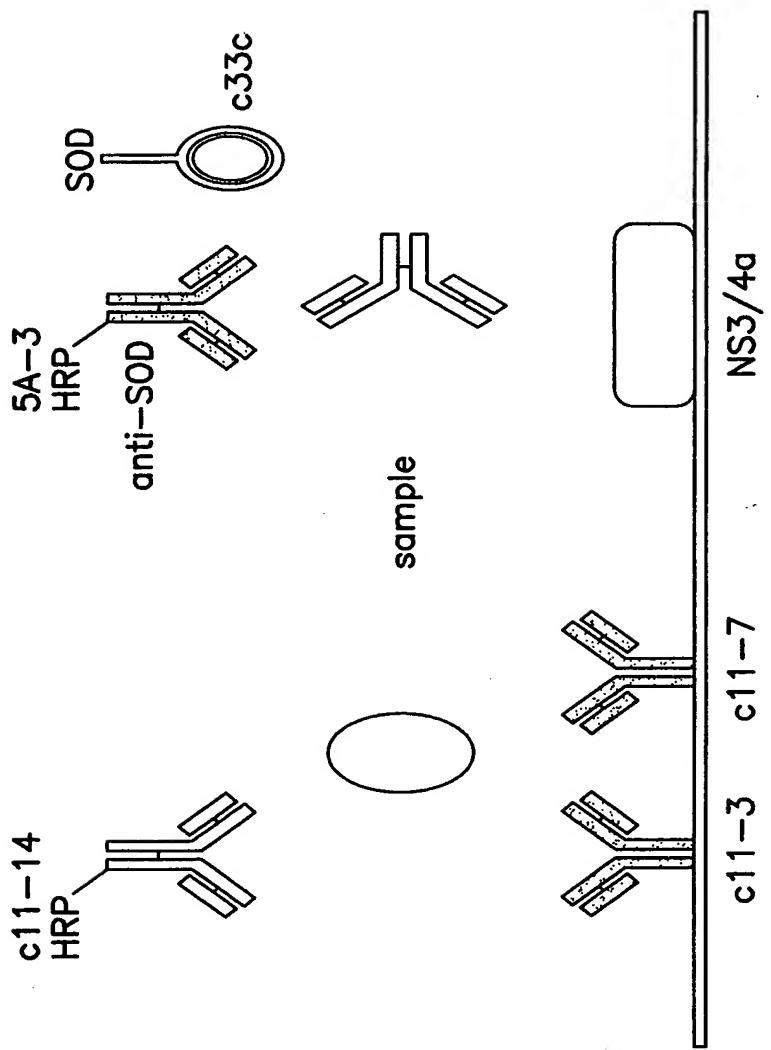


FIG. 2

FIG. 3

MSPIDPMGHHHHHGRRRAASVAAGILVPRGSPIGLDGICSIIEFFAPITAYAQQTTRGLLIGCIITSLTGRDKNQVE
GEVQIVSTAAQTFIATCINGCWTIVYHGAGTERTIASPKGPVIQMYTNVDQDLVGMPASQGTRSLTPCTCGSSD 73
LYLVTRHADVIPVRRRGDSRGSSLSSPRPISYIJKGSAGGPLLCPAGEHAVGIFRAAVCTRGAVALQDFIPVENE 146
TTMRSPPVFTDNSSPPVVPQSFPQVAHLHAPTGSGKSTKVPAAYAAGYKVLYLNPSVAATLGFGAYMSKAHGID 219
PNIRTGVRTITTGSPITYSTYGKFPLADGGCSCGGAYDIIIICDECHSTDATSTLIGITVLDQAETAGARLWVLAT 292
ATPPGSVTVPHPNIEEVALSTTGEIPFYGKAIPLEVIKGGRHLIFCHSKKKCDELAALKVALGINAVAYRGL 365
DVSVIPPIGDVVVATDALMTGYTGFDSVIDCNTCVTQTVDFSLDPTFTIETITLQPDAVSRTQRRGRTRGRG 438
KPGIYRFVAPGERPSGMFDSSVLCCECYDAGCAWYELTEATTVRLRAYMNTPGLPVCQDHLEFWEGVFTGLTH 511
IDAHFLSQTQSGENLPYLVAYQATVCARAQAPPSSWDQMWKCLIRLKPTILHGPTPLLYRLGAVQNEITLTHP 584
VTKYIMTCMSADLEVVTSTWWLVGGVIAALAYCLSTGGVVIVGRVVLSGKPAITIPDREVLYREFDEMEEC 657
728

1
M A P I T A Y A Q Q
ATG GCG CCC ATC ACG GCG TAC GCC CAG CAG

20
T R G L L G C I I T S L T - G R
ACA AGG GGC CTC CTA GGG TGC ATA ATC ACC AGC CTA ACT GGC CGG

30
D K N Q V E G E V Q I V S T A
GAC AAA AAC CAA GTG GAG GGT GAG GTC CAG ATT GTG TCA ACT GCT

40
A Q T F L A T C I N G V C W T
GCC CAA ACC TTC CTG GCA ACG TGC ATC AAT GGG GTG TGC TGG ACT

50
V Y H G A G T R T I A S P K G
GTC TAC CAC GGG GCC GGA ACG AGG ACC ATC GCG TCA CCC AAG GGT

60
P V I Q M Y T N V D Q D L V G
CCT GTC ATC CAG ATG TAT ACC AAT GTA GAC CAA GAC CTT GTG GGC

70
W P A P Q G S R S L T P C T C
TGG CCC GCT CCG CAA GGT AGC CGA TCA TTG ACA CCC TGC ACT TGC

80
G S S D L Y L V T R H A D V I
GGC TCC TCG GAC CTT TAC CTG GTC ACG AGG CAC GCC GAT GTC ATT

90
110
P V R R R G D S R G S L L S P
CCC GTG CGC CGG CGG GGT GAT AGC AGG GGC AGC CTG CTG TCG CCC

120
R P I S Y L K G S S G G P L L
CGG CCC ATT TCC TAC TTG AAA GGC TCC TCG GGG GGT CCG CTG TTG

130
140
C P A G H A V G I F R A A V C
TGC CCC GCG GGG CAC GCC GTG GGC ATA TTT AGG GCC GCG GTG TGC

150
160
T R G V A K A V D F I P V E N
ACC CGT GGA GTG GCT AAG GCG GTG GAC TTT ATC CCT GTG GAG AAC

170
180
L E T T M R S P V F T D N S S
CTA GAG ACA ACC ATG AGG TCC CCG GTG TTC ACG GAT AAC TCC TCT

190

FIG. 4A

200
 P P V V P Q S F Q V A H L H A
 CCA CCA GTA GTG CCC CAG AGC TTC CAG GTG GCT CAC CTC CAT GCT

210
 P T G S G K S T K V P A A Y A
 CCC ACA GGC AGC GGC AAA AGC ACC AAG GTC CCG GCT GCA TAT GCA

230
 A Q G Y K V L V L N P S V A A
 GCT CAG GGC TAT AAG GTG CTA GTA CTC AAC CCC TCT GTT GCT GCA

240
 T L G F G A Y M S K A H G I D
 ACA CTG GGC TTT GGT GCT TAC ATG TCC AAG GCT CAT GGG ATC GAT

260
 P N I R T G V R T I T T G S P
 CCT AAC ATC AGG ACC GGG GTG AGA ACA ATT ACC ACT GGC AGC CCC

270
 I T Y S T Y G K F L A D G G C
 ATC ACG TAC TCC ACC TAC GGC AAG TTC CTT GCC GAC GGC GGG TGC

290
 S G G A Y D I I I C D E C H S
 TCG GGG GGC GCT TAT GAC ATA ATA ATT TGT GAC GAG TGC CAC TCC

300
 T D A T S I L G I G T V L D Q
 ACG GAT GCC ACA TCC ATC TTG GGC ATT GGC ACT GTC CTT GAC CAA

320
 A E T A G A R L V V L A T A T
 GCA GAG ACT GCG GGG GCG AGA CTG GTT GTG CTC GCC ACC GCC ACC

330
 P P G S V T V P H P N I E E V
 CCT CCG GGC TCC GTC ACT GTG CCC CAT CCC AAC ATC GAG GAG GTT

350
 A L S T T G E I P F Y G K A I
 GCT CTG TCC ACC ACC GGA GAG ATC CCT TTT TAC GGC AAG GCT ATC

360
 P L E V I K G G R H L I F C H
 CCC CTC GAA GTA ATC AAG GGG GGG AGA CAT CTC ATC TTC TGT CAT

380
 S K K K C D E L A A K L V A L
 TCA AAG AAG AAG TGC GAC GAA CTC GCC GCA AAG CTG GTC GCA TTG

FIG. 4B

G I N A V A Y Y R G L D V S V
 390
 GGC ATC AAT GCC GTG GCC TAC TAC CGC GGT CTT GAC GTG TCC GTC
 400

I P P I G D V V V V A T D A L
 ATC CCG CCC ATC GGC GAT GTT GTC GTC GTG GCA ACC GAT GCC CTC
 410

M T G Y T G D F D S V I D C N
 ATG ACC GGC TAT ACG GGC GAC TTC GAC TCG GTG ATA GAC TGC AAT
 420

T C V T Q T V D F S L D P T F
 ACG TGT GTC ACC CAG ACA GTC GAT TTC AGC CTT GAC CCT ACC TTC
 430

T I E T I T L P Q D A V S R T
 ACC ATT GAG ACA ATC ACG CTC CCC CAA GAT GCT GTC TCC CGC ACT
 440

Q R R G R T G R G K P G I Y R
 CAA CGT CGG GGC AGG ACT GGC AGG GGG AAG CCA GGC ATC TAC AGA
 450

F V A P G E R P S G M F D S S
 TTT GTG GCA CCG GGG GAG CGC CCC TCC GGC ATG TTC GAC TCG TCC
 460

V L C E C Y D A G C A W Y E L
 GTC CTC TGT GAG TGC TAT GAC GCA GGC TGT GCT TGG TAT GAG CTC
 470

T P A E T T V R L R A Y M N T
 ACG CCC GCC GAG ACT ACA GTT AGG CTA CGA GCG TAC ATG AAC ACC
 480

P G L P V C Q D H L E F W E G
 CCG GGG CTT CCC GTG TGC CAG GAC CAT CTT GAA TTT TGG GAG GGC
 490

V F T G L T H I D A H F L S Q
 GTC TTT ACA GGC CTC ACT CAT ATA GAT GCC CAC TTT CTA TCC CAG
 500

T K Q S G E N L P Y L V A Y Q
 ACA AAG CAG AGT GGG GAG AAC CTT CCT TAC CTG GTA GCG TAC CAA
 510

A T V C A R A Q A P P P S W D
 GCC ACC GTG TGC GCT AGG GCT CAA GCC CCT CCC CCA TCG TGG GAC
 520

530

540

550

560

570

580

FIG. 4C

590

Q	M	W	K	C	L	I	R	L	K	P	T	L	H	G
CAG	ATG	TGG	AAG	TGT	TTG	ATT	CGC	CTC	AAG	CCC	ACC	CTC	CAT	GGG

600

P	T	P	L	L	Y	R	L	G	A	V	Q	N	E	I
CCA	ACA	CCC	CTG	CTA	TAC	AGA	CTG	GGC	GCT	GTT	CAG	AAT	GAA	ATC

610

T	L	T	H	P	V	T	K	Y	I	M	T	C	M	S
ACC	CTG	ACG	CAC	CCA	GTC	ACC	AAA	TAC	ATC	ATG	ACA	TGC	ATG	TCG

620

A	D	L	E	V	V	T	S	T	W	V	L	V	G	G
GCC	GAC	CTG	GAG	GTC	GTC	ACG	AGC	ACC	TGG	GTG	CTC	GTT	GGC	GGC

630

V	L	A	A	L	A	A	Y	C	L	S	T	G	C	V
GTC	CTG	GCT	GCT	TTG	GCC	GCG	TAT	TGC	CTG	TCA	ACA	GGC	TGC	GTG

640

V	I	V	G	R	V	V	L	S	G	K	P	A	I	I
GTC	ATA	GTG	GGC	AGG	GTC	GTC	TTG	TCC	GGG	AAG	CCG	GCA	ATC	ATA

650

P	D	R	E	V	L	Y	R	E	F	D	E	M	E	E
CCT	GAC	AGG	GAA	GTC	CTC	TAC	CGA	GAG	TTC	GAT	GAG	ATG	GAA	GAG

660

P	D	R	E	V	L	Y	R	E	F	D	E	M	E	E
CCT	GAC	AGG	GAA	GTC	CTC	TAC	CGA	GAG	TTC	GAT	GAG	ATG	GAA	GAG

670

P	D	R	E	V	L	Y	R	E	F	D	E	M	E	E
CCT	GAC	AGG	GAA	GTC	CTC	TAC	CGA	GAG	TTC	GAT	GAG	ATG	GAA	GAG

680

P	D	R	E	V	L	Y	R	E	F	D	E	M	E	E
CCT	GAC	AGG	GAA	GTC	CTC	TAC	CGA	GAG	TTC	GAT	GAG	ATG	GAA	GAG

686

C														
TGC														

FIG. 4D

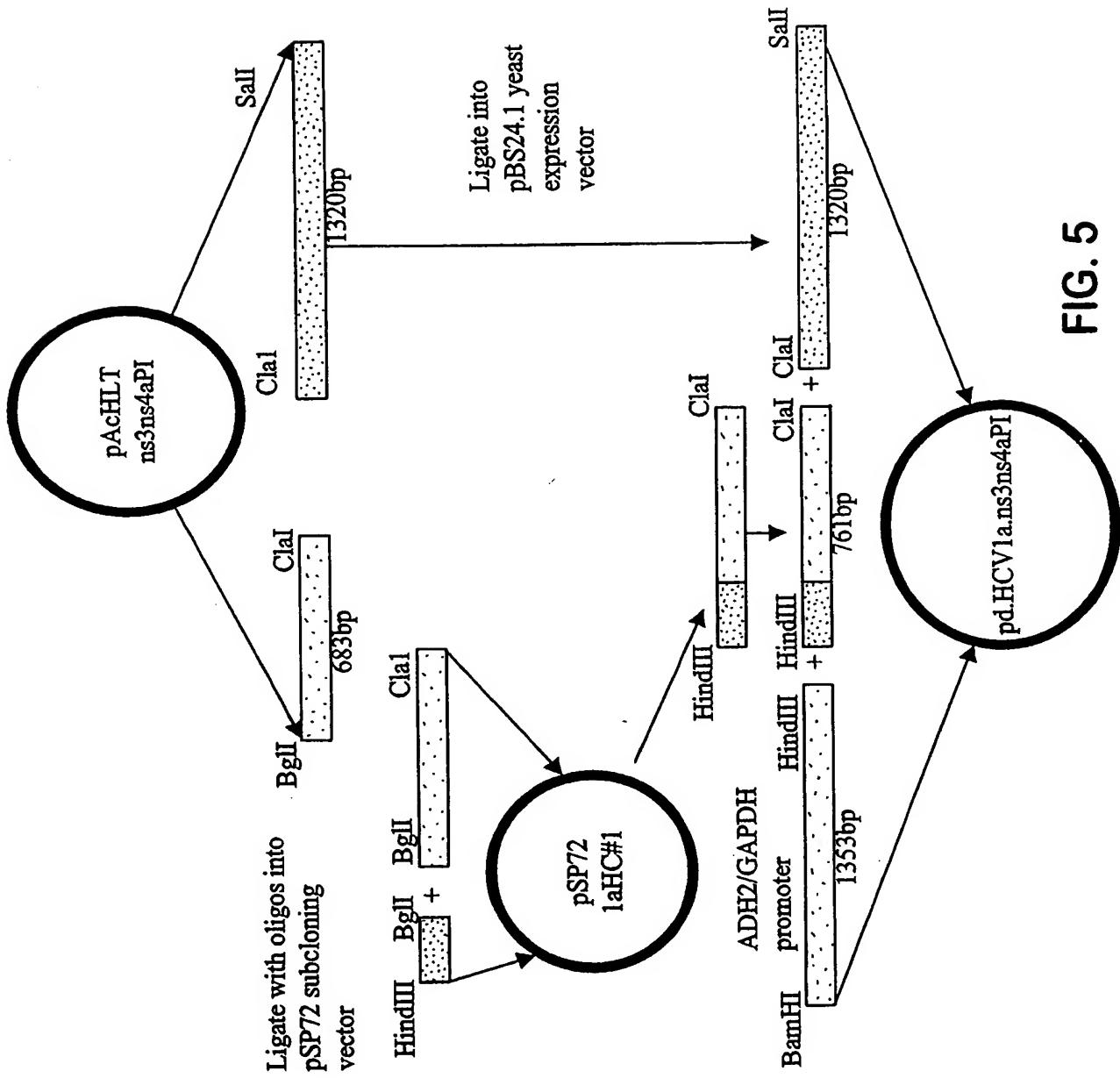


FIG. 5

MEFA I2 Antigen Construct

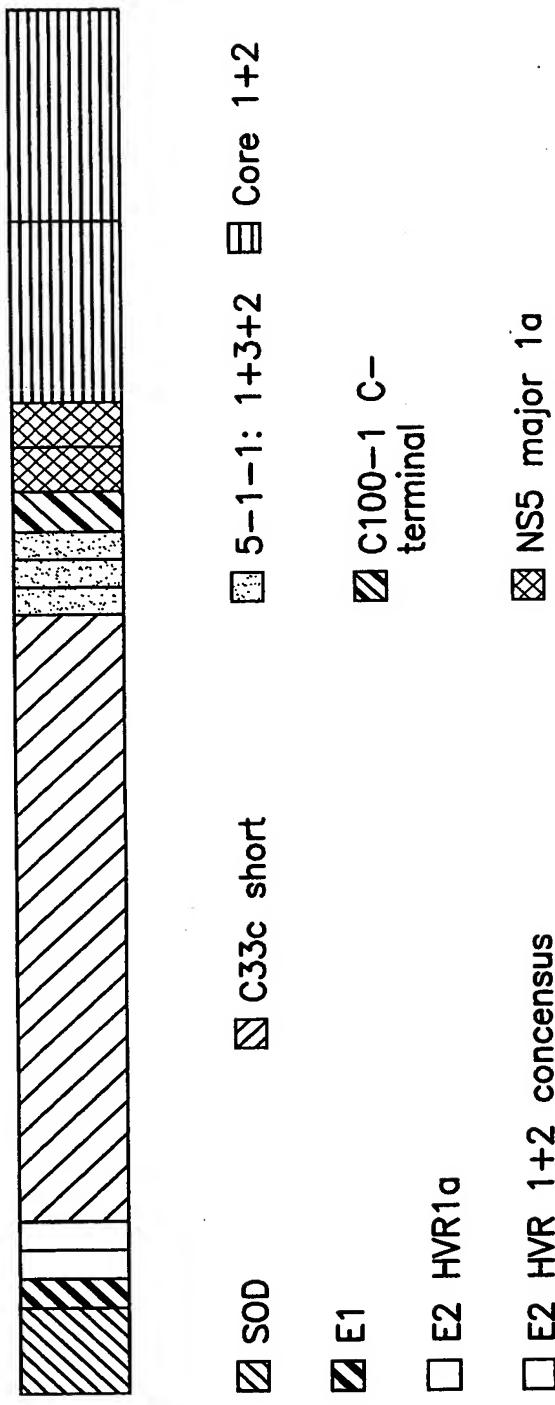


FIG. 6

1		10													
M	A	T	K	A	V	C	V	L	K	G	D	G	P	V	
ATG	GCT	ACA	AAG	GCT	GTT	TGT	GTT	TTG	AAG	GGT	GAC	GGC	CCA	GTT	45
20		30													
Q	G	I	I	N	F	E	Q	K	E	S	N	G	P	V	
CAA	GGT	ATT	ATT	AAC	TTC	GAG	CAG	AAG	GAA	AGT	AAT	GGA	CCA	GTG	90
40															
K	V	W	G	S	I	K	G	L	T	E	G	L	H	G	
AAG	GTG	TGG	GGA	AGC	ATT	AAA	GGA	CTG	ACT	GAA	GGC	CTG	CAT	GGA	135
50		60													
F	H	V	H	E	F	G	D	N	T	A	G	C	T	S	
TTC	CAT	GTT	CAT	GAG	TTT	GGA	GAT	AAT	ACA	GCA	GGC	TGT	ACC	AGT	180
70															
A	G	P	H	F	N	P	L	S	T	R	G	C	N	C	
GCA	GGT	CCT	CAC	TTT	AAT	CCT	CTA	TCC	ACG	CGT	GGT	TGC	AAT	TGC	225
80		90													
S	I	Y	P	G	H	I	T	G	H	R	M	A	W	K	
TCT	ATC	TAT	CCC	GGC	CAT	ATA	ACG	GGT	CAC	CGC	ATG	GCA	TGG	AAG	270
100															
L	G	S	A	A	R	T	T	S	G	F	V	S	L	F	
CTT	GGT	TCC	GCC	GCC	AGA	ACT	ACC	TCG	GGC	TTT	GTC	TCC	TTG	TTC	315
110		120													
A	P	G	A	K	Q	N	E	T	H	V	T	G	G	A	
GCC	CCA	GGT	GCC	AAA	CAA	AAC	GAA	ACT	CAC	GTC	ACG	GGA	GGC	GCA	360
130															
A	A	R	T	T	S	G	L	T	S	L	F	S	P	G	
GCC	GCC	CGA	ACT	ACG	TCT	GGG	TTG	ACC	TCT	TTG	TTC	TCC	CCA	GGT	405

FIG. 7A

140		150
A S Q N I Q L I T S T D N S S		
GCC AGC CAA AAC ATT CAA TTG ATT ACT AGT ACG GAT AAC TCC TCT		450
<hr/>		
160		
P P V V P Q S F Q V A H L H A		
CCA CCA GTA GTG CCC CAG AGC TTC CAG GTG GCT CAC CTC CAT GCT		495
<hr/>		
170		180
P T G S G K S T K V P A A Y A		
CCC ACA GCC AGC GGC AAA AGC ACC AAG GTC CCG GCT GCA TAT GCA		540
<hr/>		
190		
A Q G Y K V L V L N P S V A A		
GCT CAG GGC TAT AAG GTG CTA GTA CTC AAC CCC TCT GTT GCT GCA		585
<hr/>		
200		210
T L G F G A Y M S K A H G I D		
ACA CTG GGC TTT GGT GCT TAC ATG TCC AAG GCT CAT GGG ATC GAT		630
<hr/>		
220		
P N I R T G V R T I T T G S P		
CCT AAC ATC AGG ACC GGG GTG AGA ACA ATT ACC ACT GGC AGC CCC		675
<hr/>		
230		240
I T Y S T Y G K F L A D G G C		
ATC ACG TAC TCC ACC TAC GGC AAG TTC CTT GCC GAC GGC GGG TGC		720
<hr/>		
250		
S G G A Y D I I I C D E C H S		
TCG GGG GGC GCT TAT GAC ATA ATA ATT TGT GAC GAG TGC CAC TCC		765
<hr/>		
260		270
T D A T S I L G I G T V L D Q		
ACG GAT GCC ACA TCC ATC TTG GGC ATC GGC ACT GTC CTT GAC CAA		810
<hr/>		
280		
A E T A G A R L V V L A T A T		
GCA GAG ACT GCG GGG GCG AGA CTG GTT GTG CTC GCC ACC GCC ACC		855
<hr/>		
290		300
P P G S V T V P H P N I E E V		
CCT CCG GGC TCC GTC ACT GTG CCC CAT CCC AAC ATC GAG GAG GTT		900

FIG. 7B

A	L	S	T	T	G	E	I	P	F	Y	G	K	A	I		310
GCT	CTG	TCC	ACC	ACC	GGA	GAG	ATC	CCT	TTT	TAC	GGC	AAG	GCT	ATC		945
															—	
P	L	E	V	I	K	G	G	R	H	L	I	F	C	H		320
CCC	CTC	GAA	GTA	ATC	AAG	GGG	GGG	AGA	CAT	CTC	ATC	TTC	TGT	CAT		990
															—	
S	K	K	K	C	D	E	L	A	A	K	L	V	A	L		340
TCA	AAG	AAG	AAG	TGC	GAC	GAA	CTC	GCC	GCA	AAG	CTG	GTC	GCA	TTG		1035
															—	
G	I	N	A	V	A	Y	Y	R	G	L	D	V	S	V		350
GGC	ATC	AAT	GCC	GTG	GCC	TAC	TAC	CGC	GGT	CTT	GAC	GTG	TCC	GTC		1080
															—	
I	P	T	S	G	D	V	V	V	A	T	D	A	L			360
ATC	CCG	ACC	AGC	GGC	GAT	GTT	GTC	GTC	GTG	GCA	ACC	GAT	GCC	CTC		1125
															—	
M	T	G	Y	T	G	D	F	D	S	V	I	D	C	N		380
ATG	ACC	GGC	TAT	ACC	GGC	GAC	TTC	GAC	TCG	GTG	ATA	GAC	TGC	AAT		1170
															—	
T	C	A	C	S	G	K	P	A	I	I	P	D	R	E		400
ACG	TGT	GCA	TGC	TCC	GGG	AAG	CCG	GCA	ATC	ATA	CCT	GAC	AGG	GAA		1215
															—	
V	L	Y	R	E	F	D	E	M	E	E	C	S	Q	H		410
GTC	CTC	TAC	CGA	GAG	TTC	GAT	GAG	ATG	GAA	GAG	TGC	TCT	CAG	CAC		1260
															—	
L	P	Y	I	E	Q	G	M	M	L	A	E	Q	F	K		420
TTA	CCG	TAC	ATC	GAG	CAA	GGG	ATG	ATG	CTC	GCC	GAG	CAG	TTC	AAG		1305
															—	
Q	K	A	L	G	L	S	R	G	G	K	P	A	I	V		440
CAG	AAG	GCC	CTC	GGC	CTC	TCG	CGA	GGG	GGC	AAG	CCG	GCA	ATC	GTT		1350
															—	
P	D	K	E	V	L	Y	Q	Q	Y	D	E	M	E	E		450
CCA	GAC	AAA	GAG	GTG	TTG	TAT	CAA	CAA	TAC	GAT	GAG	ATG	GAA	GAG		1395
															—	

FIG. 7C

470	480
C S Q A A P Y I E Q A Q V I A	
TGC TCA CAA GCT GCC CCA TAT ATC GAA CAA GCT CAG GTA ATA GCT	1440
490	
H Q F K E K V L G L I D N D Q	
CAC CAG TTC AAG GAA AAA GTC CTT GGA TTG ATC GAT AAT GAT CAA	1485
500	510
V V V T P D K E I L Y E A F D	
GTG GTT GTG ACT CCT GAC AAA GAA ATC TTA TAT GAG GCC TTT GAT	1530
520	
E M E E C A S K A A L I E E G	
GAG ATG GAA GAA TGC GCC TCC AAA GCC GAC GAA ATT GAG GAA GGG	1575
530	540
Q R M A E M L K S K I Q G L L	
CAG CGG ATG GCG GAG ATG CTC AAG TCT AAG ATA CAA GGC CTC CTC	1625
550	
G I L R R H V G P G E G A V Q	
GGG ATA CTG CGC CGG CAC GTT GGT CCT GGC GAG GGG GCA GTG CAG	1670
560	570
W M N R L I A F A S R G N H V	
TGG ATG AAC CGG CTG ATA GCC TTC GCC TCC AGA GGG AAC CAT GTT	1715
580	
S P T H Y V P S R S R R F A Q	
TCC CCC ACG CAC TAC GTT CCG TCT AGA TCC CGG AGA TTC GCC CAG	1760
590	600
A L P V W A R P D Y N P P L V	
GCC CTG CCC GTT TGG GCG CGG CCG GAC TAT AAC CCC CCG CTA GTG	1805
610	
E T W K K P D Y E P P V V H G	
GAG ACG TGG AAA AAG CCC GAC TAC GAA CCA CCT GTG GTC CAC GGC	1850
620	630
R S S R R F A Q A L P V W A R	
AGA TCT TCT CGG AGA TTC GCC CAG GCC CTG CCC GTT TGG GCG CGG	1895

FIG. 7D

640													
P D Y N P P L V E T W K K P D													
CCG GAC TAT AAC CCC CCG CTA GTG GAG ACG TGG AAA AAG CCC GAC	1940												
650	660												
Y E P P V V H G R K T K R N T													
TAC GAA CCA CCT GTG GTC CAT GGC AGA AAG ACC AAA CGT AAC ACC	1985												
670													
N R R P Q D V K F P G G G Q I													
AAC CGG CGG CCG CAG GAC GTC AAG TTC CCG GGT GGC GGT CAG ATC	2030												
680	690												
V G G Y Y L L P R R G P R L G													
GTT GGT GGA GTT TAC TTG CCG CGC AGG GGC CCT AGA TTG GGT	2075												
700													
V L A T R K T S P I P K A R R													
G TG CTC GCG ACG AGA AAG ACT TCC CCT ATC CCC AAG GCT CGT CGG	2120												
710	720												
P E G R T W A Q P G Y P W P L													
CCC GAG GGC AGG ACC TGG GCT CAG CCC GGT TAC CCT TGG CCC CTC	2165												
730													
Y G N K D R R S T G K S W G K													
TAT GGC AAT AAG GAC AGA CGG TCT ACA GGT AAG TCC TGG GGT AAG	2210												
740	750												
P G Y P W P R K T K R N T N R													
CCA GGG TAC CCT TGG CCA AGA AAG ACC AAA CGT AAC ACC AAC CGG	2255												
760													
R P Q D V K F P G G G Q I V G													
CGG CCG CAG GAC GTC AAG TTC CCG GGT GGC GGT CAG ATC GTT GGT	2300												
770	780												
G V Y L L P R R G P R L G V L													
GGA GTT TAC TTG TTG CCG CGC AGG GGC CCT AGA TTG GGT GTG CTC	2345												
790													
A T R K T S P I P K A R R P E													
GCG ACG AGA AAG ACT TCC CCT ATC CCC AAG GCT CGT CGG CCC GAG	2390												

FIG. 7E

FIG. 7F

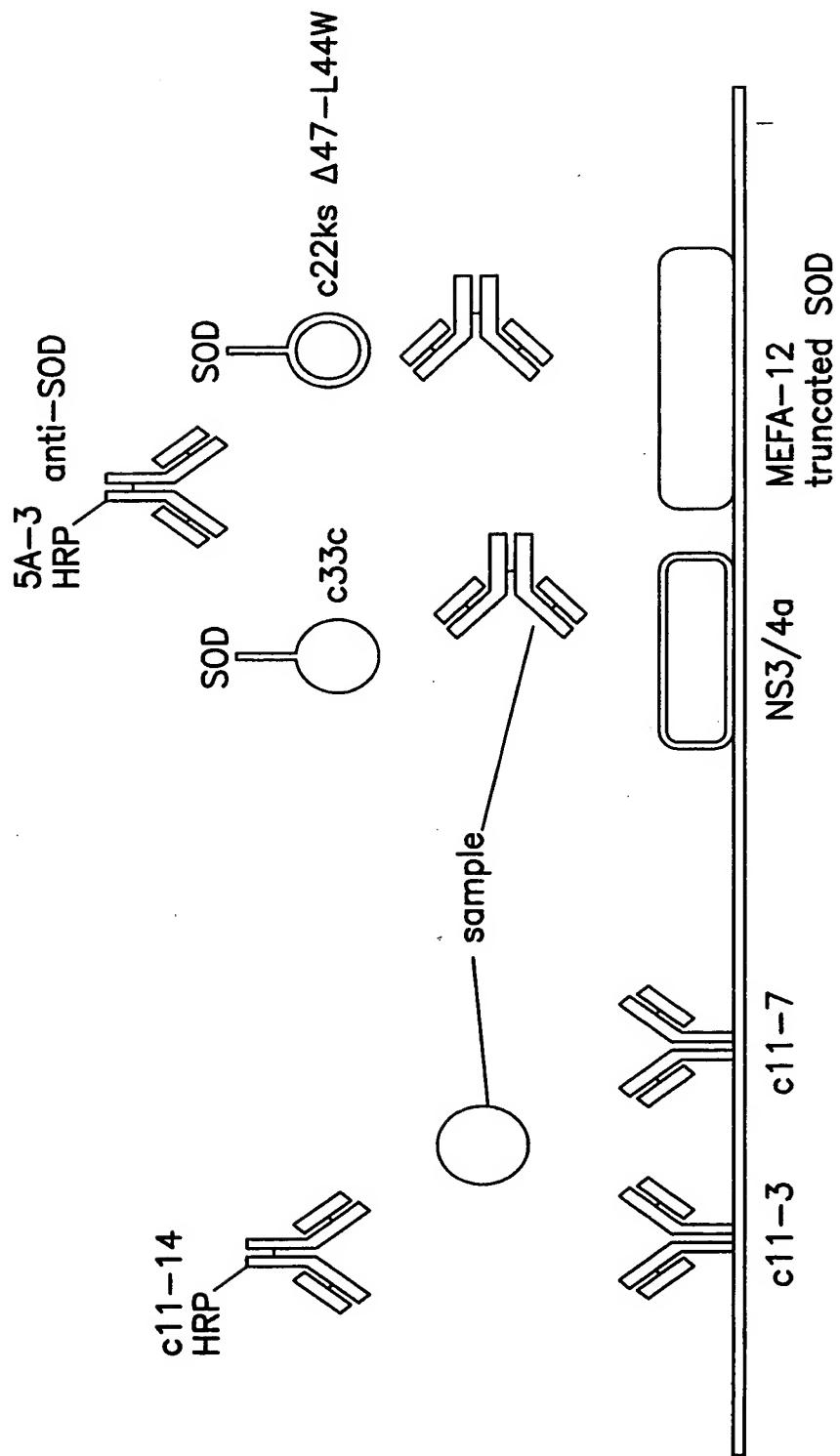


FIG. 8